

Amendments to the Claims:

The following listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

1-15. (Canceled)

16. (Currently Amended) A method for forming an insulating film, comprising:

plasma nitriding a surface of a substrate before formation of a high-dielectric constant insulating film,

forming a high-dielectric constant insulating film on [[a]] the substrate,

generating plasma based on a process gas comprising at least an oxygen atom-containing gas on the high-dielectric constant insulating film, [[and]]

irradiating the surface of the high-dielectric constant insulating film with the plasma to thereby form an oxide film at the interface between the high-dielectric constant insulating film and the substrate, and

nitriding the surface of the high-dielectric constant insulating film after formation of the oxide film,

wherein the oxide film has a thickness of 6-12 Å.

17. (Previously Presented) A method for forming an insulating film according to claim 16, wherein the plasma is generated based on microwave via a plane antenna member (RLSA) having a plurality of slots.

18. (Previously Presented) A method for forming an insulating film according to claim 16, wherein the high-dielectric constant insulating film comprises at least one material selected from the group consisting of Al₂O₃, ZrO₂, HfO₂, Ta₂O₅, ZrSiO, HfSiO and ZrAlO.

19. (Currently Amended) A method for forming an insulating film according to claim 16, wherein the process gas comprises at least one rare gas selected from the group consisting of Kr, Ar, He and Xe,
wherein the oxygen atom-containing gas is O₂ gas.

20. (Canceled)

21. (Currently Amended) A method for forming an insulating film according to claim 16, further comprising annealing the substrate after the formation of the oxide film,
wherein the annealing is conducted at a temperature of 500-1100°C.

22. (Previously Presented) A method for forming an insulating film according to claim 21, wherein the annealing is conducted in an atmosphere of N₂, O₂, or N₂ and O₂.

23-28. (Canceled)

29. (Currently Amended) A
forming a HfSiO film on [[a]] the substrate,
generating plasma based on a process gas comprising at least an oxygen atom-containing gas on the HfSiO film, and
irradiating the surface of the HfSiO film with the plasma, to thereby form an oxide film at the interface between the HfSiO film and the substrate,
wherein the oxide film has a thickness of 6-12 Å.

30. (Canceled)

31. (Previously Presented) A method for forming an insulating film according to claim 29, wherein the oxygen atom-containing gas is O₂ gas and the process gas comprises at least one rare gas selected from the group consisting of Kr, Ar, He and Xe.

32. (Currently Amended) A method for forming an insulating film according to claim 29, further comprising annealing the substrate after formation of the oxide film,

wherein the annealing is conducted at a temperature of 600-1100°C.

33. (Previously Presented) A method for forming an insulating film according to claim 32, wherein the annealing is conducted in an atmosphere of N₂, O₂, or N₂ and O₂.

34. (Canceled)

35. (Currently Amended) A method for forming an insulating film according to claim 29, wherein the substrate is at a temperature from room temperature to 500°C,

wherein the oxide film is formed at a pressure of 3-500 Pa.

36-39. (Canceled)

40. (Previously Presented) A method for forming an insulating film according to claim 29, wherein the HfSiO film is formed by using tertiary ethoxy hafnium (HTB: Hf(OC₂H₅)₄) and silane gas (SiH₄).

41. (Previously Presented) A method for forming an insulating film according to claim 29, further comprising washing the substrate before the formation of the HfSiO film.

42. (Currently Amended) A method for forming an insulating film, comprising:

plasma nitriding a surface of a substrate before formation of a HfSiO film,
forming a HfSiO film on [[a]] the substrate,
generating plasma based on a process gas comprising at least an oxygen atom-containing gas on the HfSiO film,
irradiating the surface of the HfSiO film with the plasma to thereby form an oxide film at the interface between the HfSiO film and the substrate, and
nitriding the surface of the HfSiO film,
wherein the oxide film has a thickness of 6-12 Å.

43. (Canceled)

44. (Previously Presented) A method for forming an insulating film according to claim 42, further comprising washing the substrate before the formation of the HfSiO film.

45. (Canceled)

46. (Currently Amended) A method for forming an electronic device, comprising:

forming a high-dielectric constant gate insulating film on a substrate,
generating plasma based on a process gas comprising at least an oxygen atom-containing gas on the high-dielectric constant gate insulating film,

irradiating [[the]] a surface of the high-dielectric constant gate insulating film with the plasma, to thereby form an oxide film at the interface between the high-dielectric constant gate insulating film and the substrate,

nitriding the surface of the high-dielectric constant gate insulating film after formation of the oxide film, and

forming a gate electrode on the high-dielectric constant gate insulating film,

wherein the oxide film has a thickness of 6-12 Å.

47-50. (Canceled)

51. (Previously Presented) A method for forming an electronic device according to claim 46, further comprising annealing the surface of the high-dielectric constant gate insulating film after the formation of the oxide film.

52. (Canceled)

53. (Previously Presented) A method for forming an electronic device according to claim 46, wherein the high-dielectric constant gate insulating film comprises at least one material selected from the group consisting of Al₂O₃, ZrO₂, HfO₂, Ta₂O₅, ZrSiO, HfSiO and ZrAlO.

54. (Previously Presented) A method for forming an electronic device according to claim 46, further comprising plasma nitriding the surface of the substrate before the formation of the high-dielectric constant gate insulating film.

55. (Canceled)